General

Guideline Title

Palliative thoracic radiotherapy in lung cancer: an American Society for Radiation Oncology evidence-based clinical practice guideline.

Bibliographic Source(s)

Rodrigues G, Videtic GM, Sur R, Bezjak A, Bradley J, Hahn CA, Langer C, Miller KL, Moeller BJ, Rosenzweig K, Movsas B. Palliative thoracic radiotherapy in lung cancer: an American Society for Radiation Oncology evidence-based clinical practice guideline. Pract Radiat Oncol. 2011 Apr;1(2):60-71. [56 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

1. What is the optimal dose/fractionation schedule for thoracic palliative external beam radiotherapy (EBRT) in patients with lung cancer (LC)?
   Guideline Statement

   Since 1985, multiple prospective randomized trials of different dose/fractionation schedules have shown that thoracic palliative EBRT can alleviate thoracic symptoms in patients with locally advanced or metastatic non–small cell lung cancer (NSCLC) who are not candidates for curative therapy. Studies suggest that higher dose/fractionation EBRT regimens (e.g., 30-Gy/10-fraction equivalent or greater) are associated with modest improvements in survival and total symptom score, primarily in patients with good performance status. As these improvements are also associated with an increase in side effects or adverse effects, such as radiation esophagitis, various shorter fractionation schedules (e.g., 20 Gy in 5 fractions, 17 Gy in 2 weekly fractions, 10 Gy in 1 fraction) have been demonstrated to provide good symptomatic control with fewer side effects, and can be used for patients requesting shorter treatment courses and/or with poor performance status.

2. What is the role of endobronchial brachytherapy (EBB) alone or in conjunction with other modalities (including EBRT) in both the initial and salvage palliative management of LC?
   Guideline Statement

   There is currently no randomized or metaanalysis-based evidence to recommend EBB alone or in conjunction with other palliative therapies (EBRT, chemotherapy, Nd:YAG laser) in the routine initial palliative management of endobronchial obstruction resulting from LC. If there is already evidence of collapsed lung resulting from central endobronchial disease, initial EBB in conjunction with EBRT can be considered because of observed increased reexpansion rates in a randomized clinical trial. EBB also remains a reasonable option in the palliative

management of a patient with endobronchial lesion causing obstruction or hemoptysis who has previously received thoracic EBRT. Continuing prospective clinical trials in the areas of initial and salvage EBB are encouraged to better define the role of this modality in the palliation of LC patients.

3. What is the role of chemotherapy administered concurrently with radiation for the palliation of LC?
   Guideline Statement

   At this time, there is no added benefit for the use of chemotherapy concurrently with radiation therapy (RT) in the palliation of thoracic symptoms in lung cancer patients. To date, there is one randomized phase III study directly addressing this issue. This study showed that, although the addition of chemotherapy to RT increased the overall response rate, this small benefit came at the cost of significant increased toxicity with no significant improvement in overall survival, progression-free survival, or symptom palliation. Most of the remainder of the studies have been early phase I studies involving a heterogeneous group of patients with a paucity of prospective quality of life data. In the context of patients receiving palliative chemotherapy, the goal should be to optimally sequence or integrate courses of chemotherapy and RT in a nonconcurrent fashion to palliate lung symptoms as clinically indicated. The use of concurrent chemoradiation should primarily be reserved for clinical trials.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Lung cancer

Guideline Category

Treatment

Clinical Specialty

Oncology

Pulmonary Medicine

Radiation Oncology

Radiology

Intended Users

Patients

Physicians

Guideline Objective(s)

To provide guidance to physicians and patients with regard to the use of external beam radiotherapy, endobronchial brachytherapy, and concurrent chemotherapy in the setting of palliative thoracic treatment for lung cancer, based on available evidence complemented by expert opinion

Target Population

Patients with lung cancer (metastatic and locally advanced disease)

Interventions and Practices Considered

1. External-beam radiation therapy (EBRT)
2. Endobronchial brachytherapy (EBB)
3. Concurrent chemotherapy (CC)

Major Outcomes Considered

- Survival
- Symptom control
- Toxicity and complications from treatment

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A literature search strategy was developed around the three practice guideline questions of external beam radiotherapy (EBRT) dose fractionation, indications for endobronchial brachytherapy (EBB), and use of concurrent chemotherapy (CC) with palliative intent radiotherapy. All search strategies were performed on PubMed assessing possible articles from 1966 to March 1, 2010. In particular, identification of randomized controlled trials (RCTs) or of other prospective clinical trial evaluations, if RCTs were unavailable, was the focus of the literature search. Reference lists for published practice guidelines, consensus statements, metaanalyses, and systematic reviews were cross-referenced with search strategies to ensure a complete set of manuscripts and abstracts for review by the Task Force. All abstracts were initially reviewed for an assessment of study relevance before a formal collection of manuscripts/abstracts for Task Force review and data synthesis.

The following key words and MeSH headings were used for the respective research questions: (1) What is the optimal dose/fractionation schedule for thoracic EBRT in patients with lung cancer? (radiotherapy/radiation, dosage/dose fractionation, palliative, quality of life, lung neoplasms, clinical trial, metaanalysis, RCT, and review, 174 articles); (2) What is the role of EBB alone or in conjunction with other modalities (including external beam radiation) in both the initial and salvage palliative management of lung cancer? (lung neoplasms, brachytherapy, palliative, clinical trial, metaanalysis, practice guideline, RCT, 21 articles); and (3) What is the role of chemotherapy administered concurrently (chemotherapy drug delivery on same days for some or all radiation fractions) with radiation for the palliation of lung cancer? (antineoplastic combined chemotherapy protocols/agents, palliation, lung neoplasms, radiation/radiotherapy, chemoradiation/chemoradiotherapy, 109 articles).

Number of Source Documents

Review question 1: 174 articles

Review question 2: 21 articles

Review question 3: 109 articles

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Rating Scheme for the Strength of the Evidence

Not applicable

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

The Task Force reviewed manuscripts and created evidence tables.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The Task Force studied issues related to the use of radiotherapy in the treatment of lung cancer (LC). Task Force membership included seven recognized experts in LC radiation oncology, one in radiation oncology/pulmonology/community practice, one representative from the Guidelines Subcommittee of the American Society for Radiation Oncology Clinical Affairs and Quality Committee (CAQC), one medical oncologist, and one radiation oncology resident.

The Task Force was to review and synthesize currently available evidence to develop a clinically practical, evidence-based guideline to help radiation oncologists and LC patients to determine the appropriate use of external beam radiotherapy (EBRT), endobronchial brachytherapy (EBB), and concurrent palliative chemoradiotherapy for palliative intent LC patients. The members of the Task Force divided into three subgroups to address separate questions based upon their particular areas of expertise. Through a series of communications by conference calls and e-mail, the Task Force completed the systematic literature review, reviewed manuscripts, created evidence tables, and formulated the practice guidelines. The Task Force sought to adhere to the American Medical Association's Physician Consortium for Performance Improvement guidance for measure development and recent calls for reform of the guideline process during the preparation of this practice guideline.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The initial draft of the manuscript was reviewed by three expert reviewers and then American Society for Radiation Oncology (ASTRO) legal counsel, and was subsequently placed on the ASTRO Web site (during the month of December 2010) for a period of public comment. Upon integration of this feedback, the document was then submitted to the ASTRO Board of Directors for their final review and approval in January 2011.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate use of palliative thoracic radiotherapy in patients with lung cancer

Potential Harms

Studies suggest that higher dose/fractionation external beam radiotherapy (EBRT) regimens (e.g., 30-Gy/10-fraction equivalent or greater) are associated with modest improvements in survival and total symptom score, primarily in patients with good performance status. As these improvements are also associated with an increase in side effects or adverse effects, such as radiation esophagitis, various shorter fractionation schedules (e.g., 20 Gy in 5 fractions, 17 Gy in 2 weekly fractions, 10 Gy in 1 fraction) have been demonstrated to provide good symptomatic control with fewer side effects.

Qualifying Statements

Qualifying Statements

- Adherence to this Guideline will not ensure successful treatment in every situation. Furthermore, this Guideline should not be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding the propriety of any specific therapy must be made by the physician and the patient in light of all the circumstances presented by the individual patient. The American Society for Radiation Oncology (ASTRO) assumes no liability for the information, conclusions, and findings contained in its Guidelines.
- This Guideline cannot be assumed to apply to the use of these interventions performed in the context of clinical trials, given that clinical studies are designed to evaluate or validate innovative approaches in a disease for which improved staging and treatment are needed or are being explored.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

End of Life Care

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 Apr

Guideline Developer(s)

American Society for Radiation Oncology - Professional Association

Source(s) of Funding

American Society for Radiation Oncology

Guideline Committee

American Society for Radiation Oncology (ASTRO) Task Force

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Conflicts of interest: Before initiation of this Guideline, all members of the Guidelines Task Group were required to complete disclosure statements. These statements are maintained at American Society for Radiation Oncology (ASTRO) Headquarters in Fairfax, VA, and pertinent disclosures are published with the report. The ASTRO Conflict of Interest Disclosure Statement seeks to provide a broad disclosure of outside interests. Where a potential conflict is detected, remedial measures to address any potential conflict are taken and will be noted in the disclosure statement.

Andrea Bezjak has received research funding from Glaxo and Elekta Synergy. Corey Langer has received research funding from Lilly and Genentech. Jeffrey Bradley is a consultant for Calypso Medical, and his spouse is a board member for the North American Spine Society. Benjamin Movsas has received research funding from Varian Inc, Resonant Inc, and Philips Inc. George Rodrigues has received an honorarium from AstraZeneca. Kenneth Rosenzweig has received funding from Lilly and Viewray. Dr Rosenzweig is on the scientific advisory board for Viewray and a scientific board member at American Radium Society. Ranjan Sur has received research funding from Varian Inc. The Task Group Chairs reviewed these disclosures and determined that they have no impact upon the content of the manuscript.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Practical Radiation Oncology Web site .

Availability of Companion Documents

None available

Patient Resources

The following is available:

- Radiation therapy for lung cancer. Brochure. Fairfax (VA): American Society for Radiation Oncology; 2012. 2 p. Electronic copies: Available from the RT Answers Web site .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical

questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI Institute on July 24, 2012. The information was verified by the guideline developer on August 22, 2012.

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